

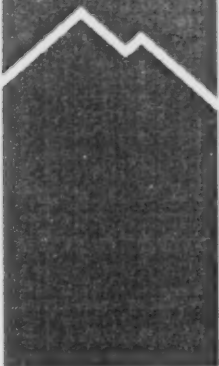


PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

Peace Arm Williston Lake Wildlife Capability Ratings

BChydro 

R. J. Backmeyer
March 1994



PWFWCP Report No. 33

The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

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Website: www.bchydro.bc.ca/environment/initiatives/pwcp/

This report has been approved by the Peace/Williston Fish and Wildlife
Compensation Program Fish Technical Committee.

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PEACE ARM WILLISTON LAKE WILDLIFE CAPABILITY RATINGS

1 INTRODUCTION

This biophysical inventory project was initiated in 1992 at the request of the Williston Wildlife Compensation Program, Prince George. The primary objective of this project was to inventory habitat capability and suitability for ungulates and bears. The Peace Arm Williston Lake area consists of 1:50,000 map sheets 94 B 1 (Butler Ridge) and 94 B 2 (Jones Peak).

2 FIELD WORK

The field work for this project was carried out in August and September of 1992 and followed the sampling procedures outlined in Luttmerding et al (1990). Project personnel included; Larry Lacelle from the Habitat Inventory Section, Wildlife Branch, Victoria; Carol Thompson of Eco-Concepts, Kelowna; and Rod Backmeyer of Diversified Environmental Services, Fort St. John. Field sampling was carried out mainly by four-wheel drive vehicle and supplemented by helicopter and boat in areas lacking road access.

3 WILDLIFE CAPABILITY CLASSIFICATION

These tables represent a biophysical classification based on a biophysical mapping methodology (Demarchi et al. 1990). The biophysical approach used is a step wise approach beginning with the two most basic needs of wildlife - food and cover. These attributes are assessed using terrain and vegetation unit mapping provided by other members of the project team. Wildlife capability ratings were assigned based on vegetation components and structure. This method was used to eliminate the time and expense of digitizing both the vegetation and wildlife capability maps.

The capability of the land to support wildlife is based on the long term ability of the land to meet the needs of a specific species. In terms of food and cover requirements, the ratings are based on the optimal vegetational stage that can be maintained for the good of the species in question. Management activities are restricted to: prescribed burning, prescribed logging or protection from any land use practice that is detrimental to the land base or the wildlife species.

Each vegetation unit is rated for all the designated species that can be supported on that unit, however, each species is rated separately. Often the optimal successional stage that is suitable for one species is not the best that is suitable for other species. The ratings are not considered additive and therefore, they give no indication as to the potential standing crop of ungulates that can be supported.

Carrying capacity estimates are expressed as animals/square kilometre/year which can be supported on a sustained basis and are represented by a capability rating from 1 (highest) to 6 (lowest). Each unit assessed for its ability to support the assigned species during winter or summer periods.

The capability classification reflects only the biological and physical parameters of the environment and does not take into account social or economic factors. Also the classification does not reflect current land use, ownership, degree of access, current wildlife management practices nor hunting pressure.

4 WILDLIFE CAPABILITY

Capability ratings were assigned to 7 species of ungulates and 2 species of bears in the project area. They include moose, elk, mule deer, white-tailed deer, caribou, mountain goat, Stone's sheep, black bear and grizzly bear.

Moose have the highest and most extensive winter range capability in the project area. Very high (class 1a) capability occurs in the Peace Lowlands and there is considerable high capability habitat throughout the lower elevations of the project area. A very large portion of the very high capability floodplain habitat was eliminated by the creation of Williston Lake. Snow depths are a limiting factor for moose in the higher elevations in the western half of the project.

Elk are found throughout the project area, with high capability winter range being restricted to the steep, open south aspects found at lower elevations along the north side of the Peace River and Williston Lake. Snow depths become a limiting factor in the mountains of the western portion of the project.

Mule deer capability closely parallels that of elk, however mule deer are more abundant than elk in the Peace Lowlands and Sikanni-Beaton Uplands and less numerous in the Hart Foothills.

White-tailed deer are primarily found in conjunction with the agricultural activities of the Peace Lowlands. Winter range is restricted to these areas as snow accumulations are restrictive in all but the low elevation south aspects of the Hart Foothills. Small pockets of white-tails are known to exist throughout the project area however, the ability of these animals to survive a deep snow winter is in question.

Caribou winter capability is primarily in the wind swept alpine portions of the eastern mountains. There is also some winter use of low elevation pine and black spruce forests east of the mountains. Summer range is found throughout the project area.

Mountain goat capability is low to very low due to a lack of suitable winter range and restricted summer escape terrain.

Stone's sheep capability is moderate in most alpine areas north of Williston Lake; there is very limited capability south of the lake due to a lack of winter habitat. Winter range capability also

exists on the low elevation shrub-grasslands along Williston Lake where escape terrain is available.

Black bear capabilities are moderate to high in the eastern portion of the project area. The highest capability habitats are those that are moist and produce high densities of succulent forage and high berry production habitats.

Grizzly bear have similar requirements to black bear, but are confined primarily to the mountains of the west half of the project area due to human disturbance.

5 CAPABILITY CLASSES

Capability Class	Winter Range	Summer Range
Class 1	Lands in this class have very high capability to support the assigned ungulate species during winter. These lands may also be important during other seasons.	Not applicable
Class 2	Lands in this class have high capability to support the assigned ungulate species during winter. These lands may also be important during other seasons	Lands in this class have very high capability to support the assigned ungulate species during summer.
Class 3	Lands in this class have moderate capability to support the assigned ungulate species during winter. These lands may also be important during other seasons.	Lands in this category have high capability to support the assigned ungulate species during summer.
Class 4	Lands in this class have low capability support the assigned ungulate species during winter. These lands may also be important during other seasons.	Lands in this category have moderate capability to support the assigned ungulate species during summer.
Class 5	Not applicable	Lands in this class have low to very low capability to support the assigned ungulate species during summer.
Class 6	Not applicable	No capability for the assigned ungulate.

6 CAPABILITY CLASS CARRYING CAPACITY ESTIMATES

This table lists potential carrying capacity estimates for each ungulate by capability class. Estimates are expressed as the number of animals per square kilometre per year.

capability class	moose	elk	mule deer	whitetail deer	caribou	mountain goat	Stone,s sheep
1	5-6	10-13	16-21	16-21	8-10	5-7	12-16
2	3-5	7-10	11-16	11-16	5-8	4-5	8-12
3	2-3	3-7	5-11	5-11	3-5	2-4	4-8
4	1-2	1-3	1-5	1-5	1-3	1-2	1-4
5	less than 1	less than 1	less than 1	less than 1	less than 1	less than 1	less than 1
6	unsuited	unsuited	unsuited	unsuited	unsuited	unsuited	unsuited

7 WILDLIFE HABITAT SUITABILITY

Habitat suitability is an estimate of the present carrying capacity of habitat based on its current vegetative state; while habitat capability is a measure of the habitats ability to support the specified species based on the optimal vegetative state for that species. For this project suitability is expressed as a percentage of capability.

Many factors influence the ability of a wildlife species to reach the carrying capacity of a specific habitat. These include predation, disease, competition from other wildlife and/or livestock, hunting pressure and current successional stage of vegetation. Since successional stage is the primary factor, the non-habitat factors have not been considered in this project

Habitats and consequently suitability values will change over time. Forest fires and land clearing can have dramatic and immediate effects on habitat suitability. More subtle changes will occur as the forest habitats age.

There is no documented methodology for habitat suitability rating, therefore these rating are the sole estimate of the author. The general format is derived from the suitability mapping of the Halfway project (A.C. Stewart 1989) which lies directly east of this project. General ratings are:

- Optimum 100% - 90%
- Less than optimum 80% - 70%
- Much less than optimum 60% - 40%

8 REFERENCES

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PEACE ARM WILLISTON LAKE

UNGULATE CAPABILITY

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

PEACE LOWLANDS

BWBSmwl

AR	Aspen-Rose, fine texture	1aW	3W	3W	2W	2W	6	6	6	L	M(s-f)
AS	Aspen-Saskatoon, warm aspect	1aW	2W	2W	3W	3W	6	6	6	L	H(sp-f)
BD	Birch-Redosier, cool aspect	2W	3	3	4	4	6	6	6	M(s-f)	M(s-f)
BP	Black spruce-Sphagnum, bog	4W	5	5	5	5	5	6	6	L	L
BS	Black spruce-Uplands	3W	3	4	4	4	6	6	6	L	L
CF	Cultivated field	3	2W	2W	3W	3W	6	6	6	L	H
GP	Gravel pit	6	6	6	6	6	6	6	6	N	N
LS	Lodgepole pine-soopolallie, coarse texture	3W	4W	4W	4	4	6	6	6	L	M(s-f)
PC	Poplar-Cranberry, moist	2W	3	3	3	3	6	6	6	M(s-f)	H(s-f)

M O O S E E K
 R M U D E L K
 W T D E E R
 C A R I B O A U
 M T G O A T
 S S H E E E A P
 G R L B E A R
 B L E E A R

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

M	R	M	W	C	M	S	G	B
O	M	U	T	A	T		R	L
O				R		S		
S	E	D	D	I	G	H	B	B
E	L	E	E	B	O	E	E	E
	K	E	E	O	A	E	A	A
		R	R	U	T	P	R	R

PEACE LOWLANDS - BWBSmw1 (cont')

SB	White spruce-Bunchberry, mesic	2W	3	4	4	5	6	6	L	M(s-f)
SBf	White spruce-Bunchberry, fluvial	2W	3W	3	4W	5	6	6	L	M(s-f)
SJ	Sasatoon-June grass, warm aspect	3W	1aW	1aW	3W	6	6	6	L	M(sp)
SW	Sasatoon-Wheatgrass, warm aspect	3W	1aW	1aW	3W	6	6	6	L	M(sp)
SP	White spruce-Poplar, floodplain	1aW	3W	3W	3W	6	6	6	H sp.f	H sp.f
SRs	White spruce-Wildrye, warm aspect, shallow soil	2W	1aW	2W	3W	6	6	6	L	L
SS	Scrub birch-Sedge fen	2W	4W	4	4W	6	6	6	M(s-f)	M(s-f)
WB	Bebb's willow-Bluejoint, swamp	2W	3W	4	3W	6	6	6	M(s-f)	M(s-f)
WI	Willow swamp	2W	4	5	4	6	6	6	L	L

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

M O O S E R M U T C A R T G B L
S E E K D E E R M U T G B L
E L L D E E R M U T G B L
M O O S E D E E R M U T G B L

SIKANNI BEATTION UPLAND

BMWBSmwi

AN	Anthropogenic	6	6	6	6	6	6	6	N	N
BP	Black spruce-Sphagnum, bog	4W	5	6	5	5	6	6	L	L
BS	Black spruce upland	3W	4	4	4	5	6	6	L	L
CF	Cultivated field	4	2W	2W	3W	6	6	6	L	H
DO	Devil's club-Oak fern, moist	3W	4	5	4	5	6	6	M(s-f)	L
GB	Gravel bar	5	5	5	5	6	6	6	L	L
LS	Lodgepole pine-Soopollallie, coarse texture	3W	4W	4W	4W	5	6	6	L	M(s-f)
PC	Poplar-Cranberry, moist	2W	3	3	3	5	6	6	M(s-f)	H(s-f)
ROw	Rock, warm aspect	6	6	6	6	6	6	5	N	N
SB	White spruce-Bunchberry, mesic	2W	4	4	4	5	6	6	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

SIKANNI BEATTON - BWBSmwl (cont')

SBf	White spruce-Bunchberry, fluvial	2W	4	4	4	5	6	6	H(s-f)	H(s-f)
SJ	Saskatoon-June grass, warm aspect	3W	2W	2W	3W	5	6	6	L	M(sp)
SP	White spruce-Poplar, floodplain	2W	3W	3W	3W	5	6	6	H sp, f	H sp, f
SRd	White spruce-Wildrye, warm aspect, deep soil	2W	1aW	2W	3W	5	6	6	M(s-f)	M(s-f)
SRs	White spruce-Wildrye, warm aspect, shallow soil	2W	2W	2W	3W	5	6	6	L	L
SS	Strub birch-Sedge fen	3W	3	4	3W	5	6	6	M(s-f)	M(s-f)
WJ	Willow swamp	2W	3	4	3W	5	6	6	M(s-f)	M(s-f)
UJr	Urban	6	6	6	6	6	6	6	L	L

M O O S E
 R M U D E L K
 W T D E E R
 C A R I B O O U
 M T G O A T
 S S H E E E P
 G R B B E A R
 B L B E A R

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

M	R	M	W	C	M	S	G	B
O	M	U	T	A	T		R	L
O				R		S		
S	E	D	D	I	G	H	B	B
E	L	E	E	B	O	E	E	E
	K	E	E	O	A	E	A	A
		R	R	U	T	P	R	R

SIKANNI BEATTON UPLAND

BWBSwk1

BL	Black spruce-Lingonberry upland	3W	3	3	3	5	6	6	L	L
BP	Black spruce-Sphagnum, bog	4	5	6	5	5	6	6	L	L
CF	Cultivated field	4	2W	2W	3W	6	6	6	L	H
RO	Rock	6	6	6	6	6	6	5	N	N
SC	White spruce-Swamp currant, moist	2W	4	3	4	5	6	6	M(s-f)	M(s-f)
SF	Scrub birch-Sedge fen	2W	4	5	4	5	6	6	M(s-f)	M(s-f)
SH	White spruce-Huckleberry, mesic	2W	3	3	4	5	6	6	M(s-f)	M(s-f)
SHc	White spruce-Huckleberry, cool aspect	3W	4	4	4	5	6	6	M(s-f)	M(s-f)
SWd	White spruce-Wildrye, warm aspect, deep soil	2W	2W	3W	4W	5	6	6	M(s-f)	M(s-f)
SWs	White spruce-Wildrye, warm aspect, shallow soil	3W	3W	3W	4W	5	6	6	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

M	R	M	W	C	M	S	G	B
O	M	U	T	A	T		R	L
O				R		S		
S	E	D	D	I	G	H	B	B
E	L	E	E	B	O	E	E	E
	K	E	E	O	A	E	A	A
		R	R	U	T	P	R	R

HART FOOTHILLS

BWBSmwl

AN	Anthropogenic	6	6	6	6	6	6	N	N
AS	Aspen-Saskatoon, warm aspect	2W	2W	2W	3W	6	6	4	L M sp.f
BA	Barren escarpment	6	6	6	6	6	5	5	N N
BD	Birch-Redossier, cool aspect	3W	3	3	3	6	6	6	M(s-f) M(s-f)
CF	Cultivated field	4	3W	3W	4W	6	6	6	M(f) H
DO	Devil's club-Oak fern, moist	3W	4	5	4	5	6	6	M(s-f) M(s-f)
JK	JUniper-Kinnickinnick	5	3W	3W	5	6	6	4	L L
LS	Lodgepole pine-Soopollalie, coarse texture	3W	4W	4	4	5	6	5	L L
PC	Poplar-Cranberry, moist	2W	3	3	3	5	6	6	M(s-f) M(s-f)
ROc	Rock, cool aspect	6	6	6	6	6	6	5	N N

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

HART FOOTHILLS

BWBSmw1 (cont')

ROW	Rock, warm aspect	6	6	6	6	6	6	3W	N	N
SA	White spruce-Cranberry, cool aspect	3W	3	3	4	5	6	6	M(s-f)	M(s-f)
SB	White spruce-Bunchberry, mesic	3W	3	3	4	5	6	6	L	M(s-f)
SBf	White spruce-Bunchberry, fluvial	3W	4	4	4	5	6	6	M(s-f)	M(s-f)
SJ	Saskatoon-June grass, warm aspect	3w	2w	2w	4w	6	6	4	M(sp)	M(sp)
SP	White spruce-Poplar, floodplain	2W	3W	3W	3W	5	6	6	H sp,f	H sp,f
SRd	White spruce-Wildrye, warm aspect, deep soil	2W	1aW	2W	3W	5	6	6	M(s-f)	M(s-f)
SRs	White spruce-Wildrye, warm aspect, shallow soil	3W	2W	2W	3W	5	6	6	L	L
SS	Scrub birch-Sedge fen	4W	4	5	4	6	6	6	M(s-f)	M(s-f)
WI	Willow swamp	3W	4	5	4	6	6	6	L	L

M R M W C M S G B
 O M U T A T L
 O R
 S D I G H B
 E L E E B O E E
 K E E O A E A
 R R U T P R R

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

IIART FOOTHILLS - BWBSwk1

BL Black spruce-Lingonberry upland

RH Rose-Horsetail, floodplain

RO Rock

ROc Rock, cool aspect

ROw Rock, warm aspect

SC White spruce-Swamp currant, moist

SF Scrub birch-Sedge fen

SH White spruce-Huckleberry, mesic

SHc White spruce-Huckleberry, cool aspect

SHs White spruce-Huckleberry, shallow soil

SWd White spruce-Wildrye, warm, aspect, deep soil

SWs White spruce-Wildrye, warm aspect, shallow soil

M O O	R M	M U	W T	C A	M T	S	G R	B L
S E	E L K	D E E R	D E E R	I B O O U	G O A T	H E E A P	B E A R	B E A R
4W	3	4	4	5	6	6	L	L
3W	3	3	3	6	6	6	M(s-f)	M(s-f)
6	6	6	6	6	5	5	N	N
6	6	6	6	6	5	4	N	N
6	6	6	6	6	5	3W	N	N
3W	4	4	4	5	6	6	M(s-f)	M(s-f)
3W	4	5	4	6	6	6	M(s-f)	M(s-f)
3W	3	3	5	5	6	6	M(s-f)	M(s-f)
3	4	4	5	5	6	6	M(s-f)	M(s-f)
4W	4W	3	5	5	6	6	M(s-f)	M(s-f)
3W	3W	3W	4	5	6	5	M(s-f)	M(s-f)
3W	3W	3W	4	5	6	5	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

HART FOOTHILLS - SBSwk2

BB	Black spruce-Sphagnum bog	5	6	6	5	4	6	6	6	L	L
BF	Black spruce-Feather moss upland	4	5	6	5	5	4	6	6	L	L
HC	Huckleberry-Cranberry, coarse texture	4	5	5	5	5	5	6	6	M(sp)	M(s-f)
LF	Lodgepole pine-Feather moss, warm aspect, shallow soil	4	5	5	5	5	5	6	5	L	L
LH	Lodgepole pine-Huckleberry, warm aspect, deep soil	3W	4	4	5	5	5	6	5	H(s-f)	H(s-f)
ROe	Rock, cool aspect	6	6	6	6	6	6	5	5	N	N
ROw	Rock, warm aspect	6	6	6	6	6	6	5	4	N	N
SD	Hybrid white spruce-Devil's club, moist	4	5	5	5	5	5	6	6	H(s-f)	M(s-f)
SE	Sedge wetland	4W	4	5	5	5	4	6	6	M(s-f)	M(s-f)
SO	Hybrid white spruce-Oak fern, mesic	3W	4W	5	5	5	5	6	6	M(s-f)	M(s-f)
SOe	Hybrid white spruce-Oak fern, cool aspect	3	4	5	5	5	5	6	6	H sp, f	H(s-f)
ST	Hybrid white spruce-Horsetail, floodplain	3	4	5	5	5	5	6	6	H sp, f	H(sp-s)

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

HART FOOTHILLS - ESSFmv4

FP	Subalpine fir-Pink mountain heather, upper elevations	5	6	5	6	3W	5	4	M(s-f) M(s-f)
FC	Subalpine fir-Crowberry ridge	5	5	5	6	3W	5	4W	L L
PB	Cowparsnip-Bluebell avalanche chute	5	6	6	6	4	5	5	H(s-f) M(s-f)
RO	Rock	6	6	6	6	6	5	5	N N
ROc	Rock, cool aspect	6	6	6	6	6	5	5	N N
ROw	Rock, warm aspect	6	6	6	6	6	5	3W	N N
RTc	Rock talus, cool aspect	6	6	6	6	6	5	5	N N
RTw	Rock talus, warm aspect	6	6	6	6	6	5	4W	N N
SE	Sedge wetland	4	5	6	6	4	6	6	H(s-f) M(s-f)
SG	Engelman spruce-Gooseberry, moist	4	4	5	6	5	6	6	M(s-f) M(s-f)
SL	Engelman spruce-Labrador tea, coarse texture	4	5	5	6	5	6	6	L L

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

HART FOOTHILLS - ESSFm4 (cont')

SMd	Engelman spruce-Step moss, warm aspect, deep soil	4	3	5	5	5	5	5	G R	B L
SMs	Engelman spruce-Step moss, warm aspect, shallow soil	4	3	5	5	6	5	5	M (s-f)	L
SU	Engelman spruce-Huckleberry, mesic	4	5	5	5	6	5	5	H (s-f)	H(s-f)
SUc	Engelman spruce-Huckleberry, cool aspect	4	5	5	5	6	5	5	H (s-f)	H(s-f)
WL	Willow swamp	4	4	5	5	6	6	6	M (s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE CAPABILITY

HART FOOTHILLS - ESSFwk2

EB	Engelman spruce-Huckleberry, warm aspect shallow soil	5	5	5	6	4	5	5	5	H(s-f) H(s-f)
ED	Engelman spruce-Devil's club, moist	5	5	5	6	5	6	6	6	H(s-f) M(s-f)
EF	Engelman spruce-Oak fern, mesic	5	5	5	6	4	6	6	6	H(s-f) M(s-f)
EFc	Engelman spruce-Oak fern, cool aspect	5	5	5	6	4	6	6	6	H(s-f) M(s-f)
ER	Engelman spruce-Rhododendron, warm aspect, deep soil	5	5	5	6	4	5	5	5	M(s-f) M(s-f)
FC	Subalpine fir-Crowberry ridge	5	5	5	6	3W	5	3	3	L L
RO	Rock	6	6	6	6	6	5	4	4	N N
ROc	Rock, cool aspect	6	6	6	6	6	5	4	4	N N
PB	Cow parsnip-Bluebell avalanche chute	5	6	6	6	6	5	4	4	H(s-f) M(s-f)

HART FOOTHILLS - AT

HART FOOTHILLS - AT										
	M	R	M	W	C	M	S	G	B	
	O	M	U	T	A	T		R	L	
	O				R		S			
	S	E	D	D	I	G	H	B	B	
	E	L	E	E	B	O	E	E	E	
		K	E	E	O	A	E	A	A	
			R	R	U	T	P	R	R	
AL	6	6	6	6	1aW	3	2W	L	N	
BM	5	5	6	6	2W	3	2W	L	L	
HD	4	3	5	6	3W	4	3W	M(s-f)	L	
FP	4	4	5	6	3W	4	3	M(s-f)	L	
PB	3	3	6	6	5	3	4	H(s-f)	M(s-f)	
WM	4	3	5	6	2W	3	3	M(s-f)	L	
RO	6	6	6	6	6	5	4	N	N	
ROc	6	6	6	6	6	5	4	N	N	
ROw	6	6	6	6	6	3W	3W	N	N	
RTc	6	6	6	6	6	4	4	N	N	
RTw	6	6	6	6	6	4W	3W	N	N	

PEACE ARM WILLISTON LAKE

UNGULATE SUITABILITY

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

PEACE LOWLANDS - BWBSmwl

AR	Aspen-Rose, fine texture	age class	M R M W C A R										S	G	B
			1aW	3w	3W	3W	3W	3W	3W	3W	3W	3W			
		1	C	C	C	C	C	C	C	C	C	C	-	L	M(s-f)
		2	90	80	90	90	90	90	90	90	90	90	-	L	M(s-f)
		3	80	70	70	70	70	70	70	70	70	70	-	L	M(s-f)
		4	60	60	60	60	60	60	60	60	60	60	-	L	M(s-f)
		5	60	60	60	60	60	60	60	60	60	60	-	L	M(s-f)
AS	Aspen-Saskatoon, warm aspect		1aW	2W	2W	3W	3W	3W	3W	3W	3W	3W	6	L	H(sp-f)
		1	90	C	C	C	C	C	C	C	C	C	-	L	H(sp-f)
		2	C	80	C	C	C	C	C	C	C	C	-	L	M(sp-f)
		3	80	75	85	90	90	90	90	90	90	90	-	L	M(sp-f)
		4	80	70	80	80	80	80	80	80	80	80	-	L	M(sp-f)
		5	70	60	70	70	70	70	70	70	70	70	-	L	M(sp-f)
BD	Birch-Redlossier, cool aspect		2W	3	3	4	4	4	4	4	4	4	6	M(s-f)	M(s-f)
		1	C	C	C	C	C	C	C	C	C	C	-	M(s-f)	M(s-f)
		2	C	80	90	90	90	90	90	90	90	90	-	M(s-f)	M(s-f)
		3	80	70	70	70	70	70	70	70	70	70	-	M(s-f)	M(s-f)
		4	70	60	60	60	60	60	60	60	60	60	-	M(s-f)	M(s-f)
		5	60	60	60	60	60	60	60	60	60	60	-	M(s-f)	M(s-f)

PEACE LOWLANDS - BWBSmw1 (cont')

BP Black spruce-Sphagnum, bog

BS Black spruce-Uplands

age class

1
2
3
4
5

4W 5 5 5 5 5 6 6 L L

3W 3 4 4 4 4 6 6 6 L L

C C C C C C - - - - -
90 90 90 90 90
80 80 80 80 80
60 60 60 60 60
50 60 60 60 60
L L L L L
L L L L L
L L L L L
L L L L L
L L L L L

CF Cultivated field

GP Gravel pit

LS Lodgepole pine-scopolallie, coarse texture

age class

1
2
3
4
5

3 2W 2W 3W 3W 6 6 6 6 6 L H

6 6 6 6 6 6 6 6 6 N N
3W 4W 4W 4W 4W 6 6 6 6 6 M(s-f)
C C C C C - - - - -
80 80 80 80 80
70 70 70 70 70
60 60 60 60 60
50 60 60 60 60
L L L L L
L L L L L
L L L L L

PC Poplar-Cranberry, moist

age class

1
2
3
4
5

2W 3 3 3 3 3 6 6 6 M(s-f) H(s-f)

C C C C C - - - - -
90 90 90 90 90
80 80 80 80 80
70 70 70 70 70
60 60 60 60 60
60 60 60 60 60
M(s-f) H(s-f)
M(s-f) H(s-f)
M(s-f) H(s-f)
M(s-f) H(s-f)
M(s-f) H(s-f)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

PEACE LOWLANDS - BWBSmw1 (cont')

SB White spruce-Bunchberry, mesic

	2W	3	4	4	5	6	6	S	G	B
M										
O										
O										
S										
E										
R										
M										
U										
D										
E										
L										
K										
E										
I										
B										
O										
A										
T										
U										
R										
P										
T										
A										
R										
B										
L										

SBf White spruce-Bunchberry, fluvial

age class

1	C	C	C	C	50	-	-	-	L	M(s-f)
2	90	70	80	80	60	-	-	-	L	M(s-f)
3	70	60	70	70	70	-	-	-	L	M(s-f)
4	60	55	60	60	90	-	-	-	L	M(s-f)
5	60	50	60	60	C	-	-	-	L	M(s-f)

SJ Saskatoon-June grass, warm aspect

SW Saskatoon-Wheatgrass, warm aspect

1	C	C	C	C	50	-	-	-	L	M(s-f)
2	90	70	80	80	60	-	-	-	L	M(s-f)
3	70	60	70	70	70	-	-	-	L	M(s-f)
4	60	55	60	60	80	-	-	-	L	M(s-f)
5	60	50	60	60	C	-	-	-	L	M(s-f)

PEACE LOWLANDS-BWBSnw1 (cont')

SP	White spruce-Poplar, floodplain	age class	1aW	3W	3W	3W	3W	6	6	6	H sp, f H sp, f
		1	C	C	C	C	C	-	-	-	H sp, f H sp, f
		2	C	C	95	90	90	-	-	-	H sp, f H sp, f
		3	80	C	90	90	90	-	-	-	H sp, f H sp, f
		4	80	90	85	80	80	-	-	-	H sp, f H sp, f
		5	70	80	80	70	70	-	-	-	H sp, f H sp, f
SRs	White spruce-Wildrye, warm aspect, shallow soil		2W	1aW	2W	3W	6	6	6	6	L L L
		1	C	C	C	C	-	-	-	-	L L L
		2	90	C	90	90	-	-	-	-	L L L
		3	80	90	80	80	-	-	-	-	L L L
		4	70	80	70	70	-	-	-	-	L L L
		5	60	80	60	60	-	-	-	-	L L L
SS	Scrub birch-Sedge fen		2W	4W	4	4W	6	6	6	6	M(s-f) M(s-f)
WB	Bebb's willow-Bluejoint, swamp		2W	3W	4	3W	6	6	6	6	M(s-f) M(s-f)
WI	Willow swamp		2W	4	5	4	6	6	6	6	L L L

B B L B E A R
G R B E A R
S S H E E P
M T G O A T
C A R I B O U
W T D E E R
M U D E E R
R M E L K
M O O S E

	6	6	6	6	6	6	6	N
AN Anthropogenic								
BP Black spruce-Sphagnum, bog	4W	5	6	5	5	6	6	L

	CF	Cultivated field		4	2W	2W	2W	3W	6	6	6	L
DO		Devil's club-Oak fern, moist		3W	4	5	4	5	6	6		M(s-f) L
			age class	1	C	C	C	C	50	-	-	M(s-f) L
				2	90	80	80	90	60	-	-	M(s-f) L
				3	80	70	70	80	70	-	-	M(s-f) L
				4	75	60	60	70	90	-	-	M(s-f) L
				5	70	50	50	60	C	-	-	M(s-f) L

SIKANNI BEATTON UPLAND- BWBSmwl (conf)

GB Gravel bar

5 5 5 5 6 6 6 L L

LS Lodgepole pine-Soopolallie, coarse texture

3W 4W 4W 4W 5 6 6 L M(s-f)

age class

1 C C C C 40 - - L M(s-f)
2 90 80 80 80 50 - - L M(s-f)
3 70 70 70 70 60 - - L M(s-f)
4 60 60 60 60 80 - - L L
5 50 60 60 60 C - - L L

PC Poplar-Cranberry, moist

2W 3 3 3 5 6 6 M(s-f) H(s-f)

age class

1 C C C C 40 - - M(s-f) H(s-f)
2 90 80 90 90 50 - - M(s-f) H(s-f)
3 80 70 70 80 60 - - M(s-f) H(s-f)
4 70 60 60 70 80 - - M(s-f) H(s-f)
5 60 60 60 60 C - - M(s-f) H(s-f)

ROW Rock, warm aspect

6 6 6 6 6 5 N N

SB White spruce-Bunchberry, mesic

2W 4 4 4 5 6 6 M(s-f) M(s-f)

age class

1 C C C C 50 - - M(s-f) M(s-f)
2 90 80 80 80 60 - - M(s-f) M(s-f)
3 70 60 70 70 70 - - M(s-f) M(s-f)
4 60 55 60 60 90 - - L L
5 60 50 60 60 C - - L L

SIKANNI BEATTON - BWBSmwI (cont')

SBf	White spruce-Bunchberry, fluvial	2W	4	4	4	5	6	6	H(s-f)	H(s-f)
	age class	1	C	C	C	C	50	-	H(s-f)	H(s-f)
		2	90	70	80	80	60	-	H(s-f)	H(s-f)
		3	70	60	70	70	70	-	H(s-f)	H(s-f)
		4	60	55	60	60	80	-	H(s-f)	H(s-f)
		5	60	50	60	60	C	-	H(s-f)	H(s-f)
SJ	Saskatoon-June grass, warm aspect	3W	2W	2W	3W	5	6	6	L	M(sp)
SP	White spruce-Poplar, floodplain	2W	3W	3W	3W	5	6	6	H sp, f	H sp, f
	age class	1	C	C	C	C	60	-	H sp, f	H sp, f
		2	C	C	95	90	70	-	H sp, f	H sp, f
		3	80	C	90	90	70	-	H sp, f	H sp, f
		4	80	90	85	80	90	-	H sp, f	H sp, f
		5	70	80	80	70	C	-	H sp, f	H sp, f

M O O S E
R M E L K
M U D E E R
W T D E E R
C A R I B O U
M T G O A T
S S H E E P
G R B E E R
B L B E E R

BL Black spruce-Lingonberry upland

age class	C	C	C	C	-	L
1	80	80	80	40	-	L
2	80	80	80	50	-	L
3	70	70	70	70	-	L
4	60	65	60	90	-	L
5	60	60	50	C	-	L

BP³ Black spruce-Sphagnum, bog

Cultivated field

ROCK

SC White spruce-Swamp currant, moist

age class	1	C	C	C	C	-	M(s-f)
	2	90	80	90	90	-	M(s-f)
	3	80	70	80	80	-	M(s-f)
	4	70	60	70	70	-	L
	5	60	60	60	60	-	L

SHKANNI BEATON UPLAND -BWBSwKI (cont')

SF	Scrub birch-Sedge fen		2W	4	5	4	5	6	6	M(s-f)	M(s-f)
SH	White spruce-Huckleberry, mesic		2W	3	3	4	5	6	6	M(s-f)	M(s-f)
	age class	1	C	C	C	C	40	-	-	M(s-f)	M(s-f)
		2	80	90	80	80	50	-	-	M(s-f)	M(s-f)
		3	70	80	70	70	60	-	-	M(s-f)	M(s-f)
		4	60	70	60	60	80	-	-	M(s-f)	M(s-f)
		5	60	60	60	60	C	-	-	M(s-f)	M(s-f)
SHc	White spruce-Huckleberry, cool aspect		3W	4	4	4	5	6	6	M(s-f)	M(s-f)
	age class	1	C	C	C	C	40	-	-	M(s-f)	M(s-f)
		2	80	90	80	80	50	-	-	M(s-f)	M(s-f)
		3	70	80	70	70	60	-	-	M(s-f)	M(s-f)
		4	60	70	60	60	80	-	-	M(s-f)	M(s-f)
		5	60	60	60	60	C	-	-	M(s-f)	M(s-f)
SWd	White spruce-Wildrye, warm aspect, deep soil		2W	2W	3W	4W	5	6	6	M(s-f)	M(s-f)
	age class	1	C	C	C	C	50	-	-	M(s-f)	M(s-f)
		2	90	C	80	80	60	-	-	M(s-f)	M(s-f)
		3	70	90	70	70	70	-	-	M(s-f)	M(s-f)
		4	60	80	60	60	80	-	-	L	L
		5	60	80	60	60	C	-	-	L	L
SWs	White spruce-Wildrye, warm aspect, shallow soil		3W	3W	3W	4W	5	6	6	M(s-f)	M(s-f)
	age class	1	C	C	C	C	50	-	-	M(s-f)	M(s-f)
		2	90	C	80	80	60	-	-	M(s-f)	M(s-f)
		3	70	90	70	70	70	-	-	M(s-f)	M(s-f)
		4	60	80	60	60	80	-	-	L	L
		5	60	80	60	60	C	-	-	L	L

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - BWBSnw1

AN	Anthropogenic	6	6	6	6	6	6	6	6	S	G	B
											R	L
										S		
										H	B	B
										E	E	E
										E	A	A
										P	R	R
AS	Aspen-Saskatoon, warm aspect	2W	2W	2W	3W	6	6	6	6	4	L	M sp,f
	age class	1	90	C	C	90	-	-	-	C	L	M sp,f
		2	C	80	C	C	-	-	-	80	L	M sp,f
		3	80	75	85	90	-	-	-	70	L	M sp,f
		4	80	70	80	80	-	-	-	70	L	L
		5	70	60	70	70	-	-	-	60	L	L
BA	Barren escarpment	6	6	6	6	6	6	6	5	5	N	N
BD	Birch-Redossier, cool aspect	3W	3	3	3	3	6	6	6	6	M(s-f)	M(s-f)
	age class	1	C	C	C	C	-	-	-	-	M(s-f)	M(s-f)
		2	C	80	90	90	-	-	-	-	M(s-f)	M(s-f)
		3	80	70	70	70	-	-	-	-	M(s-f)	M(s-f)
		4	70	60	60	60	-	-	-	-	M(s-f)	M(s-f)
		5	60	60	60	60	-	-	-	-	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - BWBSmw1 (cont')

ROw Rock, warm aspect

SA White spruce-Cranberry, cool aspect

age class

1	C	C	C	C	6	6	6	6	3W	N	N	
2	90	80	80	80	50	50	50	50	6	M(s-f)	M(s-f)	
3	80	60	70	70	60	60	60	60	-	M(s-f)	M(s-f)	
4	60	50	60	60	80	80	80	80	-	M(s-f)	M(s-f)	
5	50	40	50	50	C	C	C	C	-	M(s-f)	M(s-f)	
	3W	3	3	3	4	4	4	4	6	L	M(s-f)	
1	C	C	C	C	40	40	40	40	-	L	M(s-f)	
2	90	70	80	80	60	60	60	60	-	L	M(s-f)	
3	70	60	70	70	70	70	70	70	-	L	M(s-f)	
4	60	55	60	60	90	90	90	90	-	L	L	
5	60	50	60	60	C	C	C	C	-	L	L	
	3W	4	4	4	4	4	4	4	6	M(s-f)	M(s-f)	

SB White spruce-Bunchberry, mesic

age class

1	C	C	C	C	50	50	50	50	-	M(s-f)	M(s-f)	
2	90	70	80	80	60	60	60	60	-	M(s-f)	M(s-f)	
3	70	60	70	70	70	70	70	70	-	M(s-f)	M(s-f)	
4	60	55	60	60	80	80	80	80	-	L	L	
5	60	50	60	60	C	C	C	C	-	L	L	
	3W	4	4	4	4	4	4	4	6	M(s-f)	M(s-f)	
1	C	C	C	C	50	50	50	50	-	M(s-f)	M(s-f)	
2	90	70	80	80	60	60	60	60	-	M(s-f)	M(s-f)	
3	70	60	70	70	70	70	70	70	-	M(s-f)	M(s-f)	
4	60	55	60	60	80	80	80	80	-	L	L	
5	60	50	60	60	C	C	C	C	-	L	L	
	3W	4	4	4	4	4	4	4	6	M(s-f)	M(s-f)	

SBf White spruce-Bunchberry, fluvial

age class

1	C	C	C	C	50	50	50	50	-	M(s-f)	M(s-f)	
2	90	70	80	80	60	60	60	60	-	M(s-f)	M(s-f)	
3	70	60	70	70	70	70	70	70	-	M(s-f)	M(s-f)	
4	60	55	60	60	80	80	80	80	-	L	L	
5	60	50	60	60	C	C	C	C	-	L	L	
	3W	4	4	4	4	4	4	4	6	M(s-f)	M(s-f)	

HART FOOTHILLS-BWBSmw1 (cont')

SJ	Saskatoon-June grass, warm aspect	3w	2w	2w	4w	6	6	4	M(sp) M(sp)
SP	White spruce-Poplar, floodplain	2W	3W	3W	3W	5	6	6	H sp,f H sp,f
	age class	1	C	C	C	60	-	-	H sp,f H sp,f
		2	C	C	95	70	-	-	H sp,f H sp,f
		3	80	C	90	80	-	-	H sp,f H sp,f
		4	80	90	80	80	-	-	H sp,f H sp,f
		5	70	80	80	C	-	-	H sp,f H sp,f
SRJ	White spruce-Wildrye, warm aspect, deep soil	2W	1aW	2W	3W	5	6	6	M(s-f) M(s-f)
	age class	1	C	C	C	40	-	-	M(s-f) M(s-f)
		2	90	C	90	50	-	-	M(s-f) M(s-f)
		3	80	90	80	60	-	-	M(s-f) M(s-f)
		4	70	80	70	80	-	-	L L
		5	60	80	60	C	-	-	L L
SRs	White spruce-Wildrye, warm aspect, shallow soil	3W	2W	2W	3W	5	6	6	L L
	age class	1	C	C	C	40	-	-	L L
		2	90	C	90	50	-	-	L L
		3	80	90	80	60	-	-	L L
		4	70	80	70	80	-	-	L L
		5	60	80	60	C	-	-	L L
SS	Scrub birch-Sedge fen	4W	4	5	4	6	6	6	M(s-f) M(s-f)
WI	Willow swamp	3W	4	5	4	6	6	6	L L

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - BWBSwK1

BL Black spruce-Lingonberry upland

age class

1
2
3
4
5

4W

M
O
O
S
E

R
M
E
L
K

M
U
D
E
E
R

M
U
D
E
E
R

C
A
R
I
B
O
U

W
T
D
E
E
R

C
A
R
I
B
O
U

M
T
G
O
A
T

S
H
E
E
P

B
L
B
E
A
R

RH Rose-Horsetail, floodplain

age class

1
2
3
4
5

3W

C
90
70
60
60

C
90
80
70
60

C
90
80
70
60

C
90
80
70
60

C
90
80
70
60

C
90
80
70
60

M(s-f)
M(s-f)
M(s-f)
M(s-f)
M(s-f)

RO Rock

ROc Rock, cool aspect

HART FOOTHILLS-BWBSwKI (cont')

ROw Rock, warm aspect

SC White spruce-Swamp currant, moist

age class

SF Scrub birch-Sedge fen

SH White spruce-Huckleberry, mesic

age class

SHc White spruce-Huckleberry, cool aspect

age class

	6	6	6	6	6	5	3W	N	N
	3W	4	4	4	4	5	6	M(s-f)	M(s-f)
1	C	C	C	C	C	40	-	M(s-f)	M(s-f)
2	90	80	90	90	90	50	-	M(s-f)	M(s-f)
3	80	70	80	80	80	60	-	M(s-f)	M(s-f)
4	70	60	70	70	70	80	-	L	L
5	60	60	60	60	60	C	-	L	L
	3W	4	5	4	4	6	6	M(s-f)	M(s-f)
	3W	3	3	3	5	5	6	M(s-f)	M(s-f)
1	C	C	C	C	C	40	-	M(s-f)	M(s-f)
2	80	90	80	80	80	50	-	M(s-f)	M(s-f)
3	70	80	70	70	70	60	-	M(s-f)	M(s-f)
4	60	70	60	60	60	80	-	M(s-f)	M(s-f)
5	60	60	60	60	60	C	-	M(s-f)	M(s-f)
	3	4	4	4	5	5	6	M(s-f)	M(s-f)
1	C	C	C	C	C	40	-	M(s-f)	M(s-f)
2	80	90	80	80	80	50	-	M(s-f)	M(s-f)
3	70	80	70	70	70	60	-	M(s-f)	M(s-f)
4	60	70	60	60	60	80	-	M(s-f)	M(s-f)
5	60	60	60	60	60	C	-	M(s-f)	M(s-f)
	3	4	4	4	5	5	6	M(s-f)	M(s-f)
1	C	C	C	C	C	40	-	M(s-f)	M(s-f)
2	80	90	80	80	80	50	-	M(s-f)	M(s-f)
3	70	80	70	70	70	60	-	M(s-f)	M(s-f)
4	60	70	60	60	60	80	-	M(s-f)	M(s-f)
5	60	60	60	60	60	C	-	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

M O O S E
R M E L K
M U D E E R
W T D E E R
C A R I B O U
M T G O A T
S S H E E E P
G R B B E A R
B B B E E A R

HART FOOTHILLS -BWBSwk1 (cont')

SHs White spruce-Huckleberry, shallow soil

age class	1	2	3	4	5	6	6	6	M(s-f)
	C	80	C	90	C	40	-	-	M(s-f)
	80	80	80	80	80	50	-	-	M(s-f)
	70	80	70	80	70	60	-	-	M(s-f)
	60	70	60	70	60	80	-	-	M(s-f)
	60	60	60	60	60	C	-	-	M(s-f)

SWd White spruce-Wildrye, warm, aspect, deep soil

age class	1	2	3	4	5	5	6	5	M(s-f)
	C	90	C	C	C	50	-	C	M(s-f)
	90	80	C	80	80	60	-	90	M(s-f)
	70	90	90	70	70	70	-	80	M(s-f)
	60	80	80	60	60	80	-	70	L
	60	80	80	60	60	C	-	60	L

Sws White spruce-Wildrye, warm aspect, shallow soil

age class	1	2	3	4	5	5	6	5	M(s-f)
	C	90	C	C	C	50	-	C	M(s-f)
	90	80	C	80	80	60	-	90	M(s-f)
	70	90	90	70	70	70	-	80	M(s-f)
	60	80	80	60	60	80	-	70	L
	60	80	80	60	60	C	-	60	L

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - SBSwk2

BB Black spruce-Sphagnum bog

BF Black spruce-Feather moss upland

HC Huckleberry-Cranberry, coarse texture

		M	R	M	W	C	M	S	G	B
		O	M	U	T	A	T	S	R	L
		O				R				
		S	E	D	D	I	G	H	B	B
		E	L	E	E	B	O	E	E	E
			K	E	E	O	A	E	A	A
				R	R	U	T	P	R	R
BB		5	6	6	5	4	6	6	L	L
BF		4	5	6	5	4	6	6	L	L
	age class	1	C	-	C	50	-	-	L	L
		2	90	-	80	60	-	-	L	L
		3	70	-	70	70	-	-	L	L
		4	60	-	60	90	-	-	L	L
		5	60	-	50	C	-	-	L	L
HC		4	5	5	5	5	6	6	M(sp)	M(s-f)
	age class	1	C	C	C	40	-	-	M(sp)	M(s-f)
		2	80	80	80	50	-	-	M(sp)	M(s-f)
		3	70	70	70	60	-	-	M(sp)	M(s-f)
		4	65	60	60	80	-	-	M(sp)	M(s-f)
		5	60	50	50	C	-	-	M(sp)	M(s-f)

HART FOOTHILLS-SBSwk2 (cont')

LF	Lodgepole pine-Feather moss, warm aspect, shallow soil	4	5	5	5	5	6	5	1.	1.
	age class	1	C	C	C	C	40	C	L	L
		2	80	80	80	80	50	-	L	L
		3	70	70	70	70	60	-	L	L
		4	60	60	60	60	80	-	L	L
		5	50	50	50	59	C	-	L	L
LH	Lodgepole pine-Huckleberry, warm aspect, deep soil	3W	4	4	5	5	6	5	H(s-f)	H(s-f)
	age class	1	C	C	C	C	50	C	H(s-f)	H(s-f)
		2	90	90	80	80	60	-	H(s-f)	H(s-f)
		3	80	70	70	70	70	-	H(s-f)	H(s-f)
		4	70	60	60	60	80	-	M(s-f)	M(s-f)
		5	60	60	50	50	C	-	M(s-f)	M(s-f)
ROc	Rock, cool aspect		6	6	6	6	6	5	N	N
ROw	Rock, warm aspect		6	6	6	6	6	5	N	N
SD	Hybrid white spruce-Devil's club, moist		4	5	5	5	5	6	H(s-f)	M(s-f)
	age class	1	C	C	C	C	50	-	H(s-f)	M(s-f)
		2	90	80	80	80	60	-	H(s-f)	M(s-f)
		3	80	70	70	70	70	-	H(s-f)	M(s-f)
		4	70	60	60	60	80	-	H(s-f)	M(s-f)
		5	70	60	50	50	C	-	H(s-f)	M(s-f)
SE	Sedge wetland		4W	4	5	5	4	6	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - SBSwk2 (cont')

SO	Hybrid white spruce-Oak fern, mesic		3W	4W	5	5	5	6	6	M(s-f)	M(s-f)
	age class	1	C	C	C	C	50	-	-	M(s-f)	M(s-f)
		2	90	90	80	80	60	-	-	M(s-f)	M(s-f)
		3	80	70	70	70	70	-	-	M(s-f)	M(s-f)
		4	70	60	60	60	80	-	-	M(s-f)	M(s-f)
		5	60	60	60	60	C	-	-	M(s-f)	M(s-f)
SOc	Hybrid white spruce-Oak fern, cool aspect		3	4	5	5	5	6	6	H sp, f	H(s-f)
	age class	1	C	C	C	C	50	-	-	H sp, f	H(s-f)
		2	90	90	80	80	60	-	-	H sp, f	H(s-f)
		3	80	70	70	70	70	-	-	H sp, f	H(s-f)
		4	70	60	60	60	80	-	-	M sp, f	M(s-f)
		5	60	60	50	50	C	-	-	M sp, f	M(s-f)
ST	Hybrid white spruce-Horsetail, floodplain		3	4	5	5	5	6	6	H sp, f	H(sp-s)
	age class	1	C	C	C	C	50	-	-	H sp, f	H(sp-s)
		2	80	80	80	80	60	-	-	H sp, f	H(sp-s)
		3	70	70	70	70	70	-	-	H sp, f	H(sp-s)
		4	60	60	60	60	80	-	-	M sp, f	M(sp-s)
		5	50	50	50	50	C	-	-	M sp, f	M(sp-s)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

		M	R	M	W	C	M	S	G	B
		O	M	U	T	A	T		R	L
		O				R		S		
		S	E	D	D	I	G	H	B	B
		E	L	E	E	B	O	E	E	E
			K	E	E	O	A	E	A	A
				R	R	U	T	P	R	R
		4	4	5	5	3W	5	4	M(s-f)	M(s-f)
	age class	1	C	C	C	C	50	C	M(s-f)	M(s-f)
	2	80	80	80	80	60	90	90	M(s-f)	M(s-f)
	3	70	70	70	70	70	70	70	M(s-f)	M(s-f)
	4	60	60	60	60	80	60	60	L	L
	5	50	50	50	50	C	60	50	L	L
		5	5	5	6	3W	5	5	H(s-f)	H(s-f)
	age class	1	C	C	-	50	C	C	H(s-f)	H(s-f)
	2	80	80	80	-	60	90	90	H(s-f)	H(s-f)
	3	70	70	70	-	70	70	70	H(s-f)	H(s-f)
	4	60	60	60	-	80	60	60	M(s-f)	M(s-f)
	5	50	50	50	-	C	50	50	M(s-f)	M(s-f)
		5	5	5	6	3W	4	4W	L	L
	age class	1	C	C	-	50	C	C	L	L
	2	80	90	80	-	60	80	90	L	L
	3	70	80	70	-	70	70	80	L	L
	4	60	70	60	-	80	60	70	L	L
	5	50	60	50	-	C	50	60	L	L

HART FOOTHILLS - ESSFmv2

FB Subalpine fir-Bramble, mesic

FBc Subalpine fir-Bramble, cool aspect

FC Subalpine fir-Crowberry ridge

HART FOOTHILLS-ESSFmv2 (cont')

FH	Subalpine fir-Huckleberry, warm aspect, deep soil	3W	4	4	5	3W	6	5	H(s-f)	M(s-f)
	age class									
	1	C	C	C	C	50	-	C	H(s-f)	M(s-f)
	2	80	90	80	80	60	-	90	H(s-f)	M(s-f)
	3	70	80	70	70	70	-	80	H(s-f)	M(s-f)
	4	60	70	60	60	80	-	70	M(s-f)	L
	5	60	60	50	50	C	-	60	M(s-f)	L
WH	Willow-Horsetail, shrub carr	4	4	5	6	5	6	6	H(s-f)	H(s-f)
FJ	Subalpine fir-Bluejoint, moist	4W	3	4	5	5	6	6	M(s-f)	M(s-f)
	age class									
	1	C	C	C	C	50	-	-	M(s-f)	M(s-f)
	2	80	80	80	80	60	-	-	M(s-f)	M(s-f)
	3	70	70	70	70	70	-	-	M(s-f)	M(s-f)
	4	60	60	60	60	80	-	-	L	L
	5	60	50	50	50	C	-	-	L	L
FS	Subalpine fir-Scrub birch, warm aspect, shallow soil	5	4	4	6	4	5	5	M(s-f)	L
	age class									
	1	C	C	C	-	50	C	C	M(s-f)	L
	2	80	80	80	-	60	80	80	M(s-f)	L
	3	70	70	70	-	70	70	70	M(s-f)	L
	4	60	60	60	-	80	60	60	L	L
	5	50	50	50	-	C	50	50	L	L
RO	Rock	6	6	6	6	6	5	4	N	N

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS- ESSFmv2 (cont')

ROc	Rock, cool aspect	6	6	6	6	6	6	5	4	N	N
ROw	Rock, warm aspect	6	6	6	6	6	6	5	4W	N	N
RTc	Rock talus, cool aspect	6	6	6	6	6	6	5	5	N	N
FP	Subalpine fir-Pink mountain heather, upper elevations	5	6	5	6	2W	5	4	M(s-f)	M(s-f)	
	age class	1	C	-	C	-	70	C	C	M(s-f)	M(s-f)
		2	C	-	90	-	70	90	C	M(s-f)	M(s-f)
		3	90	-	80	-	80	80	90	M(s-f)	M(s-f)
		4	80	-	70	-	90	70	80	M(s-f)	M(s-f)
		5	70	-	60	-	C	60	70	M(s-f)	M(s-f)

HART FOOTHILLS - ESSFmv4

FP	Subalpine fir-Pink mountain heather, upper elevations	5	6	5	6	3W	5	4	M(s-f)	M(s-f)
	age class	1	C	-	C	-	70	C	M(s-f)	M(s-f)
		2	C	-	90	-	70	90	M(s-f)	M(s-f)
		3	90	-	80	-	80	80	M(s-f)	M(s-f)
		4	80	-	70	-	90	70	M(s-f)	L
		5	70	-	60	-	C	60	M(s-f)	L
FC	Subalpine fir-Crowberry ridge	5	5	5	6	3W	5	4W	L	L
	age class	1	C	C	C	60	C	C	L	L
		2	80	90	80	70	80	90	L	L
		3	70	80	70	80	70	80	L	L
		4	60	70	60	90	60	70	L	L
		5	50	60	50	C	60	70	L	L
PB	Cowparsnip-Bluebell avalanche chute	5	6	6	6	4	5	5	H(s-f)	M(s-f)
RO	Rock	6	6	6	6	6	5	5	N	N

HART FOOTHILLS-ESSFmv4 (cont')

ROc	Rock, cool aspect	6	6	6	6	5	5	N	N
ROw	Rock, warm aspect	6	6	6	6	5	3W	N	N
RTc	Rock talus, cool aspect	6	6	6	6	5	5	N	N
RTw	Rock talus, warm aspect	6	6	6	6	5	4W	N	N
SE	Sedge wetland	4	5	6	6	4	6	H(s-f)	M(s-f)
SG	Engelman spruce-Gooseberry, moist	4	4	5	6	5	6	M(s-f)	M(s-f)
	age class	1	C	C	-	50	-	M(s-f)	M(s-f)
		2	80	80	-	60	-	M(s-f)	M(s-f)
		3	70	70	-	70	-	M(s-f)	M(s-f)
		4	60	60	-	80	-	M(s-f)	M(s-f)
		5	50	50	-	C	-	M(s-f)	M(s-f)
SL	Engelman spruce-Labrador tea, coarse texture	4	5	5	6	5	6	L	L
	age class	1	C	C	-	50	-	L	L
		2	80	80	-	60	-	L	L
		3	70	70	-	70	-	L	L
		4	60	60	-	80	-	L	L
		5	50	50	-	C	-	L	L

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - ESSFmv4 (cont')

SMd	Engelman spruce-Step moss, warm aspect, deep soil	4	4	5	6	5	5	5	M(s-f)	M(s-f)
	age class	1	C	C	C	-	50	C	M(s-f)	M(s-f)
		2	80	C	80	-	60	90	C	M(s-f)
		3	70	90	70	-	70	80	90	M(s-f)
		4	60	80	60	-	80	70	80	L
		5	60	80	50	-	C	60	80	L
SMs	Engelman spruce-Step moss, warm aspect, shallow soil	4	4	5	6	5	5	5	M(s-f)	L
	age class	1	C	C	C	-	50	C	C	M(s-f)
		2	80	C	80	-	60	90	C	M(s-f)
		3	70	90	70	-	70	80	90	M(s-f)
		4	60	80	60	-	80	70	80	L
		5	60	80	50	-	C	60	80	L
SU	Engelman spruce-Huckleberry, mesic	4	5	5	6	5	5	5	H(s-f)	H(s-f)
	age class	1	C	C	C	-	50	C	C	H(s-f)
		2	80	80	80	-	60	80	80	H(s-f)
		3	70	70	70	-	70	70	70	H(s-f)
		4	60	60	60	-	80	60	60	H(s-f)
		5	50	50	50	-	C	50	50	H(s-f)

HART' FOOTBALLS-ESSFmv4 (cont')

SUC	Engelman spruce-Huckleberry, cool aspect	4	5	5	6	5	5	5	H(s-f)	H(s-f)
	age class	1	C	C	C	-	50	C	C	C
		2	80	80	80	-	60	80	80	80
		3	70	70	70	-	70	70	70	70
		4	60	60	60	-	80	60	60	60
		5	50	50	50	-	C	50	50	50
W1.	Willow swamp	4	4	5	6	6	6	6	M(s-f)	M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

HART FOOTHILLS - ESSFWk2

		M	R	M	W	C	M	S	G	B
		O	M	U	T	A	T		R	L
		O				R		S		
		S	E	D	D	I	G	H	B	B
		E	L	E	E	B	O	E	E	E
			K	E	E	O	A	E	A	A
				R	R	U	T	P	R	R
E:B	Engelman spruce-Huckleberry, warm aspect shallow soil	5	5	5	6	4	5	5	H(s-f)	H(s-f)
	age class	1	C	C	-	50	C	C	H(s-f)	H(s-f)
		2	80	80	-	60	80	80	H(s-f)	H(s-f)
		3	70	70	-	70	70	70	H(s-f)	H(s-f)
		4	60	60	-	80	60	60	H(s-f)	H(s-f)
		5	50	50	-	C	60	50	H(s-f)	H(s-f)
E:D	Engelman spruce-Devil's club, moist	5	5	5	6	5	6	6	H(s-f)	M(s-f)
	age class	1	C	C	-	C	-	-	H(s-f)	M(s-f)
		2	80	80	-	80	-	-	H(s-f)	M(s-f)
		3	70	70	-	70	-	-	H(s-f)	M(s-f)
		4	60	60	-	60	-	-	M(s-f)	L
		5	50	50	-	50	-	-	M(s-f)	L
E:F	Engelman spruce-Oak fern, mesic	5	5	5	6	4	6	6	H(s-f)	M(s-f)
	age class	1	C	C	-	50	-	-	H(s-f)	M(s-f)
		2	80	80	-	60	-	-	H(s-f)	M(s-f)
		3	70	70	-	70	-	-	H(s-f)	M(s-f)
		4	60	60	-	80	-	-	M(s-f)	L
		5	50	50	-	C	-	-	M(s-f)	L

HART FOOTHILLS-ESSF wk2 (cont')

EFe	Engelman spruce-Oak fern, cool aspect	5	5	5	6	4	6	6	H(s-f) M(s-f)
	age class	1	C	C	-	50	-	-	H(s-f) M(s-f)
		2	80	80	-	60	-	-	H(s-f) M(s-f)
		3	70	70	-	70	-	-	H(s-f) M(s-f)
		4	60	60	-	80	-	-	M(s-f) L
		5	50	50	-	C	-	-	M(s-f) L
ER	Engelman spruce-Rhododendron, warm aspect, deep soil	5	5	5	6	4	5	5	M(s-f) M(s-f)
	age class	1	C	C	-	50	C	C	M(s-f) M(s-f)
		2	80	80	-	60	80	80	M(s-f) M(s-f)
		3	70	70	-	70	70	70	M(s-f) M(s-f)
		4	60	60	-	80	60	60	L L
		5	50	50	-	C	50	50	L L
FC	Subalpine fir-Crowberry ridge	5	5	5	6	3W	5	3	L L
	age class	1	C	C	-	50	C	C	L L
		2	80	80	-	60	80	90	L L
		3	70	70	-	70	70	80	L L
		4	60	60	-	90	60	70	L L
		5	50	50	-	C	50	60	L L
RO	Rock	6	6	6	6	6	5	4	N N
ROc	Rock, cool aspect	6	6	6	6	6	5	4	N N
PB	Cow parsnip-Bluebell avalanche chute	5	6	6	6	6	5	4	H(s-f) M(s-f)

PEACE ARM WILLISTON LAKE UNGULATE SUITABILITY

	M O O	R M U	M U T	W T R	C A R	M T S	G R L	B L
	S E	E L K	D E E	D E E	I B O	G O A	B E A	B E A
			R	R	U	T	P	R
HART FOOTHILLS - AT								
AL Artic Bluegrass-Lichen, upper ridge	6	6	6	6	1aW	3	2W	L N
BM Scrub birch-Monkshood tundra	5	5	6	6	2W	3	2W	L L
HD Subalpine daisy-Heather meadow	4	3	5	6	3W	4	3W	M(s-f) L
FP Subalpine fir-Heather, upper elevation krumholtz	4	4	5	6	3W	3	2	M(s-f) L
PB Cow parsnip Bluebell avalanche chute	3	3	6	6	5	3	3	H(s-f) M(s-f)
WM Netted willow-Avens ridge	4	3	5	6	2W	3	3	M(s-f) L
RO Rock	6	6	6	6	6	5	4	N N

ROc	Rock, cool aspect	6	6	6	6	6	5	4	N	N
ROw	Rock, warm aspect	6	6	6	6	6	3W	3W	N	N
RTc	Rock talus, cool aspect	6	6	6	6	6	4	4	N	N
RTw	Rock, warm aspect	6	6	6	6	6	4W	3W	N	N